

Notice of Allowability

Application No.

10/668,087

Examiner

Robert R. Koehler

Applicant(s)

DAROLIA ET AL.

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to applicants' Amendment and Remarks filed on July 21, 2005.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☒ The drawings filed on 22 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

**ROBERT R. KOEHLER
PRIMARY EXAMINER**

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DETAILED ACTION***Allowable Subject Matter***

Claims 1 to 30 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art search has not produced any references which teach, suggest, or disclose applicants' claimed turbine engine component having a protective coating formed by an electroplating process whereby at least two platinum group metals selected from the group consisting of Pt, Pd, Rh, Ru, and Ir are deposited onto the component by sequential deposition, co-deposition using an electroplating step, deposition using entrapment plating, or combinations thereof. Also, the prior art does not teach, suggest, or disclose applicants' claimed method of forming a protective coating on a turbine engine component by an electroplating process whereby at least two platinum group metals selected from the group consisting of Pt, Pd, Rh, Ru, and Ir are deposited onto the component by sequential deposition, co-deposition using an electroplating step, deposition using entrapment plating, or combinations thereof. Also, the prior art does not teach, suggest, or disclose applicants' claimed method of forming a protective coating on a turbine engine component by an electroplating process whereby at least two platinum group metals selected from the group consisting of Pt, Pd, Rh, Ru, and Ir are deposited onto the component, heat treating the protective coating and component, and forming a ceramic thermal barrier coating over the protective coating. The Examiner provides the following justifications for the allowance of claims 1 to 30. (1) U.S. Patent No. 6,656,605 B1 (Schaeffer, et al.) and U.S. Patent No. 5,897,966 (Grossklaus, Jr., et al., the cited prior art of record), mention the usage of electroplating as a means for depositing only a platinum protective coating over a turbine engine component, but both patents fail to teach or reasonably suggest *any electroplating process for the deposition of two of more noble metals*. The Schaeffer, et al. '605 patent does mention that two or more noble metals can be used to form an alloy protective coating on a turbine

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engine component (see lines 51 to 61 in column 3), but the patent fails to provide any statement that two or more noble metals can be electroplated on a component surface. Furthermore, the '605 patent describes a preference for electroplating only platinum on a component surface, and the patent *fails to recognize any benefits of using a noble metal alloy on a component surface*.

(2) U.S. Patent No. 5,538,796 (Schaeffer, et al.) does not mention the electrodeposition of any noble metals on a turbine engine component. The patent teaches the production of an aluminum oxide scale layer on a component surface; see the Abstract and lines 28 to 59 in column 7. (3) U.S. Patent No. 4,399,199 (McGill, et al.) does not teach or reasonably suggest the electrodeposition of any noble metals on a turbine engine component, and this patent relies on the methods of fused salt plating, plasma spraying, flame spraying, and vacuum pack cementation for producing a platinum coating on a substrate. (4) The Examiner believes that applicants' claimed subject matter of an electroplating process "wherein the platinum group metals are sequentially deposited, co-deposited using an electroplating step, or deposited using entrapment plating, or combinations thereof" confers *specific electroplated structures* to the claimed protective coating. In other words, the "sequentially deposited" platinum metals produce at least a two-layered noble metal protective coating, the "co-deposited" platinum metals produce a high-purity platinum metal alloy that is located entirely or mostly on the component surface, and the "entrapment plating" of platinum metals as well as other, minor metals produces a composite protective coating characterized by metal particles within a metal matrix located entirely or mostly on the component surface. These specific metallurgical structures involving two or more platinum metals are not taught or reasonably suggested by the prior art. (5) Lastly, although the electrodeposited noble metal coating can be heat treated to form a homogenous noble metal alloy coating (for example, see independent claim 26), the Examiner believes that the prior art does not teach or reasonably suggest any *electrodeposited noble metal alloy that is in the heat treated condition*. For instance, the Schaeffer, et al. '605

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patent mentions a high-temperature treatment of an electroplated platinum layer for the purpose of causing interdiffusion of platinum atoms in the substrate, but the patent fails to teach or reasonably suggest any heat treatment that produces a noble metal alloy having at least two noble metal elements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert Koehler whose telephone number is **(571) 272-1536**. The Examiner can normally be reached on Tuesday to Friday from 9:30 AM to 7:00 PM. The Examiner can also be reached on alternate Mondays.

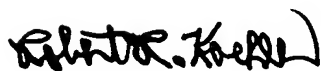
If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on **(571) 272-1535**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

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A handwritten signature in black ink, appearing to read "Robert R. Koehler". The signature is stylized with a large, looped initial "R" and a trailing flourish.

ROBERT R. KOEHLER
PRIMARY EXAMINER

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August 10, 2005